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PATENT COOPERATION TREATY

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From the
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

To:

Krawczyk, Nancy T.
THE GOODYEAR TIRE & RUBBER COMPANY
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1144 East Market Street
Akron, Ohio 44316-0001
ETATS-UNIS D'AMERIQUE

NOTIFICATION OF TRANSMITTAL OF
THE INTERNATIONAL PRELIMINARY
EXAMINATION REPORT
(PCT Rule 71.1)

Date of mailing
(day/month/year) 14.02.2002

Applicant's or agent's file reference
DN1999227PCT

IMPORTANT NOTIFICATION

International application No.
PCT/US99/24649

International filing date (day/month/year)
20/10/1999

Priority date (day/month/year)
20/10/1999

Applicant
THE GOODYEAR TIRE & RUBBER COMPANY et al.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.

4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices) (Article 39(1)) (see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/



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PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference DN1999227PCT	FOR FURTHER ACTION See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/US99/24649	International filing date (day/month/year) 20/10/1999	Priority date (day/month/year) 20/10/1999
International Patent Classification (IPC) or national classification and IPC F16L11/10		
Applicant THE GOODYEAR TIRE & RUBBER COMPANY et al.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets, including this cover sheet.

☒ This report is also accompanied by ANNEXES, i.e. sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 2 sheets.

3. This report contains indications relating to the following items:

- I ☒ Basis of the report
- II ☐ Priority
- III ☐ Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- IV ☐ Lack of unity of invention
- V ☒ Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI ☐ Certain documents cited
- VII ☐ Certain defects in the international application
- VIII ☐ Certain observations on the international application

Date of submission of the demand 30/04/2001	Date of completion of this report 14.02.2002
Name and mailing address of the international preliminary examining authority: <div style="display: flex; align-items: center;"> <div> European Patent Office D-80298 Munich Tel. +49 89 2399 - 0 Tx: 523656 epmu d Fax: +49 89 2399 - 4465 </div> </div>	Authorized officer Duerhammer, M Telephone No. +49 89 2399 2743



**INTERNATIONAL PRELIMINARY
EXAMINATION REPORT**

International application No: PCT/US99/2464

I. Basis of the report

1. With regard to the **elements** of the international application (*Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rules 70.16 and 70.17)*):
Description, pages:

1-7 as originally filed

Claims, No.:

1-13 as received on 11/10/2001 with letter of 09/10/2001

Drawings, sheets:

1/4-4/4 as originally filed

2. With regard to the **language**, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item.

These elements were available or furnished to this Authority in the following language: , which is:

- ☐ the language of a translation furnished for the purposes of the international search (under Rule 23.1(b)).
☐ the language of publication of the international application (under Rule 48.3(b)).
☐ the language of a translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

3. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority in written form.
☐ furnished subsequently to this Authority in computer readable form.
☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

4. The amendments have resulted in the cancellation of:

- ☐ the description, pages:
☐ the claims, Nos.:

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No. PCT/US99/24649

☐ the drawings, sheets:

5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed (Rule 70.2(c)):

(Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.)

6. Additional observations, if necessary:

V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes:	Claims	1-13
	No:	Claims	
Inventive step (IS)	Yes:	Claims	4-13
	No:	Claims	1-3
Industrial applicability (IA)	Yes:	Claims	1-13
	No:	Claims	

2. Citations and explanations
see separate sheet

Section V,2:

Claims 1 to 3

Document FR-A-1467 950 discloses a flexible hose comprising a flexible material, the flexible material comprising a reinforcing rod positioned externally of the flexible material, the flexible material being formed with terminal ends and the reinforcing rod having a terminal end being located short of the terminal ends of the flexible material. It is clear from the description (it says that the spiral can be attached within or outside the hose) and figures (they show that the spiral is located short of the ends of the flexible material) that no spiral reinforcement at the terminal ends of the hose is provided. With this construction the flexible material becomes a soft cuff adapted to be received by a hose fitting.

The hose according to claim 1 differs therefrom in the sense that the flexible material comprises multiple layers and that the reinforcing rod is bonded to the outermost layer of the flexible material.

Taking into consideration that the essence of the invention is to be seen in the fact that a non-reinforced end of the flexible material forms a soft cuff adapted to be received by a hose fitting (as shown by FR-A-1467 950), it is obvious for the man skilled in the art to additionally provide the hose with multiple layers and to bond the reinforcing rod to the outermost layer because the problem of forming a soft cuff at the terminal ends of the hose is clearly solved.

The present application does not meet the requirements of Article 33(3), because the solution proposed in claim 1 cannot be considered as involving an inventive step.

Dependent claims 2 and 3 do not contain any features which, in combination with the features of claim 1, meet the requirements of the PCT in respect of inventive step.

Claims 4 to 8

Page 4 of the description (see also US-A-4856 720) describes as prior art a method of manufacturing a hose comprising

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EXAMINATION REPORT - SEPARATE SHEET**

International application No. PCT/US99/24649

rotating a mandrel, feeding a length of material onto a mandrel as it rotates and feeding a second length of material in form of a reinforcing rod onto the mandrel as it rotates and curing the hose length.

The method according to claim 4 differs therefrom by

prior to feeding the reinforcing rod onto the material modifying the hose length to create non-adhesive regions thus prohibiting the second length of material from curing to the reinforcing rod.

The cuffs which are adapted to be received by a hose fitting may be at the edges of these pre-selected region.

Such a possibility is not foreseen in prior art documents so that the application meets the requirements of Article 33(3) PCT52(1) EPC.

Dependent claims 5 to 8 contain special embodiments of the subject-matter of claim 1 and fulfil as dependent claims likewise the requirement of Article 33(3) PCT.

Note: In respect of clarity (see Article 6 PCT) claim 4 should contain at its end the feature "thus prohibiting the second length of material from curing to the reinforcing rod". Only in combination with this feature the non-abrasive regions make a sense because the hose must not be cured at said portion.

Claims 9 to 13

Claim 9 concerns a hose length formed during the formation of a hose, comprising an elastomeric layer and a reinforcing rod helically wound externally of the elastomeric layer, the layer being cured to the reinforcing rod. Such a hose is generally known, as described on page 4 and in US-A-4856 720.

The device according to claim 9 differs therefrom by non-adhesive regions formed externally of the outermost layer periodically spaced along the hose length thus prohibiting the elastomeric layer from curing to the reinforcing rod.

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For the same reasons as mentioned above in respect of claim 4 also the subject-matter of claims 9 to 13 fulfils the requirement of Article 33(3) PCT.

Note: In respect of clarity (see Article 6 PCT) claim 9 should refer to a hose length "formed during the formation of a hose in accordance with claims 1 to 3" and contain at its end the feature "thus prohibiting the elastomeric layer from curing to the reinforcing rod". Only in combination with this feature the non-abrasive regions make a sense because the hose must not be cured at said portion.

CLAIMS

What is claimed is:

1. A flexible hose (10) comprising a flexible material (14), the flexible material (14) comprising multiple layers and a reinforcing rod (12) positioned externally of the outermost layer of the flexible material (14) and bonded to the outermost layer of the flexible material (14), the flexible material (14) being formed with terminal ends (18), the improvement being characterized by:

the reinforcing rod (12) having at least one terminal end (16) being located short of the terminal ends (18) of the flexible material (14), the flexible material (14) thus becoming a soft cuff (20) adapted to be received by a hose fitting.

2. A flexible hose (10) in accordance with claim 1, wherein the hose (10) is further characterized by an imprinted indent (50) extending through the soft cuff (20).

3. A flexible hose (10) in accordance with claim 2, wherein the reinforcing rod (12) is wound at a pitch externally of the flexible material (14) and the indent (50) is wound at a pitch greater than the pitch of the reinforcing rod (12).

4. A method of manufacturing a flexible hose (10) comprising
- a) rotating a mandrel (30)
 - b) feeding a length of material (42) onto the mandrel (30) as the mandrel (30) rotates, to build a hose length (32) on the mandrel (30),
 - c) feeding a second length of material in the form of a reinforcing rod (12) onto the mandrel (30) as the mandrel (30) rotates to form a helical reinforcing rod (12) on the hose length (32), and
 - d) curing the hose length (32),
- the improvement being characterized by:

prior to feeding the reinforcing rod (12) onto the mandrel (30), modifying the hose length (32) to create non-adhesive regions (46).

5. A method of manufacturing a hose (10) in accordance with claim 4, the method being further characterized by applying a third material (44) to the hose length (32) to create the non-adhesive regions (46).

6. A method of manufacturing a hose (10) in accordance with claim 4, the method being further characterized by cutting the hose length (32) in the non-adhesive regions (46).
- 5 7. A method of manufacturing a hose (10) in accordance with claim 4, the method being further characterized by varying the speed at which the mandrel (30) rotates as the reinforcing rod (12) is feed onto the mandrel (30) at the non-adhesive regions (46).
- 10 8. A method of manufacturing a hose (10) in accordance with claim 4, the method being further characterized by reducing the winding tension of the reinforcing rod (12) as the reinforcing rod (12) is feed onto the mandrel (30) at the non-adhesive regions (46).
- 15 9. A hose length (32) comprising at least one elastomeric layer (22 or 28) and a reinforcing rod (12) helically wound externally of the outermost elastomeric layer (28), the improvement being characterized by:
non-adhesive regions (46) formed externally of the outermost elastomeric layer
periodically spaced along the hose length (32).
- 20 10. A hose length (32) in accordance with claim 9, the hose length (32) being further characterized by the reinforcing rod (12) not being adhered to the at least one elastomeric layer (22 or 28) in the non-adhesive regions (46).
- 25 11. A hose length (32) in accordance with claim 9, the hose length (32) being further characterized by a rope (48) being wound adjacent to the reinforcing rod (12).
12. A hose length (32) in accordance with claim 9, the hose length being further characterized by the reinforcing rod (12) being wound at a greater pitch length in non-adhesive regions (46).
- 30 13. A hose length (32) in accordance with claim 9, the hose length being further characterized by the reinforcing rod (12) being wound at a lesser winding tension in the non-adhesive regions (46).